Agenda Item No._____

File Code No. 540.13

CITY OF SANTA BARBARA

COUNCIL AGENDA REPORT

AGENDA DATE: February 2, 2010

TO: Mayor and Councilmembers

FROM: Water Resources Division, Public Works Department

SUBJECT: Pilot Program For Digestion Of Fats, Oil, And Grease At The El Estero Wastewater Treatment Plant

RECOMMENDATION: That Council:

A. Approve a professional services agreement with AECOM for engineering and design services relating to the Fats, Oils and Grease (FOG) injection system at El Estero Wastewater Treatment Plant (El Estero) for the amount $59,400 and authorize the Public Works Director change order authority of up to $5,940 for extra services of AECOM that may result from necessary changes in the scope of work; and

B. Authorize the Public Works Director to negotiate and execute upon review and approval by the City Attorney's office, an agreement with Marborg Industries for hauling, pretreatment and delivery of FOG to El Estero during the FOG Pilot Project.

DISCUSSION:

El Estero has two anaerobic digesters which produce methane as a by-product of the treatment process. The methane can be used as a fuel source to generate electricity and heat for El Estero. Several wastewater treatment plants in California have implemented programs to accept grease from restaurant grease traps directly into their digesters. Direct injection of FOG into the digester can increase gas production while reducing the need to haul the grease for disposal. Some studies have shown that grease injection also results in more complete digestion reducing the total volume of biosolids produced.

FOG in the wastewater collection system can coat the lines, eventually causing blockages and spills. The City's Municipal Code requires that restaurants install grease traps to remove grease prior to discharge of wastewater to the sewer system. There are roughly 350 restaurants within the City's sewer system service area that produce an

estimated 20,000 gallons of FOG daily that is collected and hauled to Fresno, Bakersfield or Watsonville for processing or disposal. The pilot project will be sized for 5,000 gallons of FOG daily.

The proposed pilot project will divert FOG from disposal facilities to El Estero for digestion in the anaerobic digesters. Although it is anticipated injection of FOG into the digesters will increase methane gas production, the pilot project does not include additional equipment to generate electricity. There are two existing fuel cells at El Estero that produce electricity from methane gas and additional gas will augment their fuel supply. During the pilot project, however, it is anticipated that more gas will be produced than can be used by the fuel cells.

An important reason to do a pilot project prior to designing a full scale grease injection program is that it will allow staff to generate data on the amount of additional gas produced as it relates to the volume of FOG injected, the quality and heat value of the gas, and other performance criteria that will allow for the design of a full scale FOG digestion project. It is anticipated that a full scale FOG digestion project would include additional electricity generation equipment.

If approved, the design of the pilot project is anticipated to be completed by June 2010 with the construction projected for completion by June 2011.

Contractor Selection

Staff selected AECOM for the design of the FOG Pilot Project based on their expertise designing grease injection and digestion systems. AECOM is very familiar with this project and the project site, as they previously conducted an air quality study to address the impacts of pilot FOG implementation. They have also been instrumental in designing and providing engineering support for FOG and food co-digestion programs at several other jurisdictions, including East Bay Municipal Utility District, which is one of the model programs the City is referencing for design of its program.

AECOM's scope of work includes a technical memorandum identifying the process and equipment recommendations, plans and specifications, bid phase services, and support services through the construction phase of the FOG Pilot Project. Staff will need to return to Council at a later date with a Request for Proposal to select a contractor to construct the grease injection system.

Marborg has been identified as a suitable partner for the FOG Pilot Project based on their proximity to the delivery location, their pre-existing FOG hauling services, and their willingness to invest in the infrastructure needed to implement the FOG Pilot Project. Additionally, Marborg has a septage and portable toilet waste receiving station in Santa Barbara and operates pre-treatment equipment similar to what will be required for the FOG. The term of the contract for the pilot project is proposed to be two years with a two-year extension. Marborg will pay the City a negotiated tipping fee for hauling fats, oil, and grease to El Estero.

If the FOG Pilot Project study is successful and the City transitions to a full-scale project, staff anticipates that information and knowledge developed during the pilot study will be used to write a request for proposals from FOG haulers to deliver FOG for the full scale project. A full scale project is also anticipated to have additional electrical generation capacity.

BUDGET/FINANCIAL INFORMATION:

AECOM has estimated the design of the FOG Pilot Project and construction support services to cost approximately $60,000. Construction costs are estimated at $350,000. Staff anticipates that revenue from hauling fats, oil, and grease will generate up to $100,000 per year which equates to a payback period of approximately four years. However, if the FOG Pilot Project is successful it is anticipated that it will result in the installation of additional electricity generation equipment and offsets to the electrical costs at El Estero. Full scale project financing will be analyzed based on the results of the FOG Pilot Project.

SUSTAINABILITY IMPACT:

Implementing the FOG Pilot Program will allow El Estero to convert a waste stream of fats, oils and grease in El Estero's digester units into an increased amount of biogas production which can then be used as a renewable energy source, yielding up to approximately 4,500 kWh per day. Additional electrical generation equipment will be required to fully benefit from the increased gas production.

PREPARED BY: Chris Toth, Wastewater System Manager/AP/cc

SUBMITTED BY: Christine F. Andersen, Public Works Director

APPROVED BY: City Administrator's Office